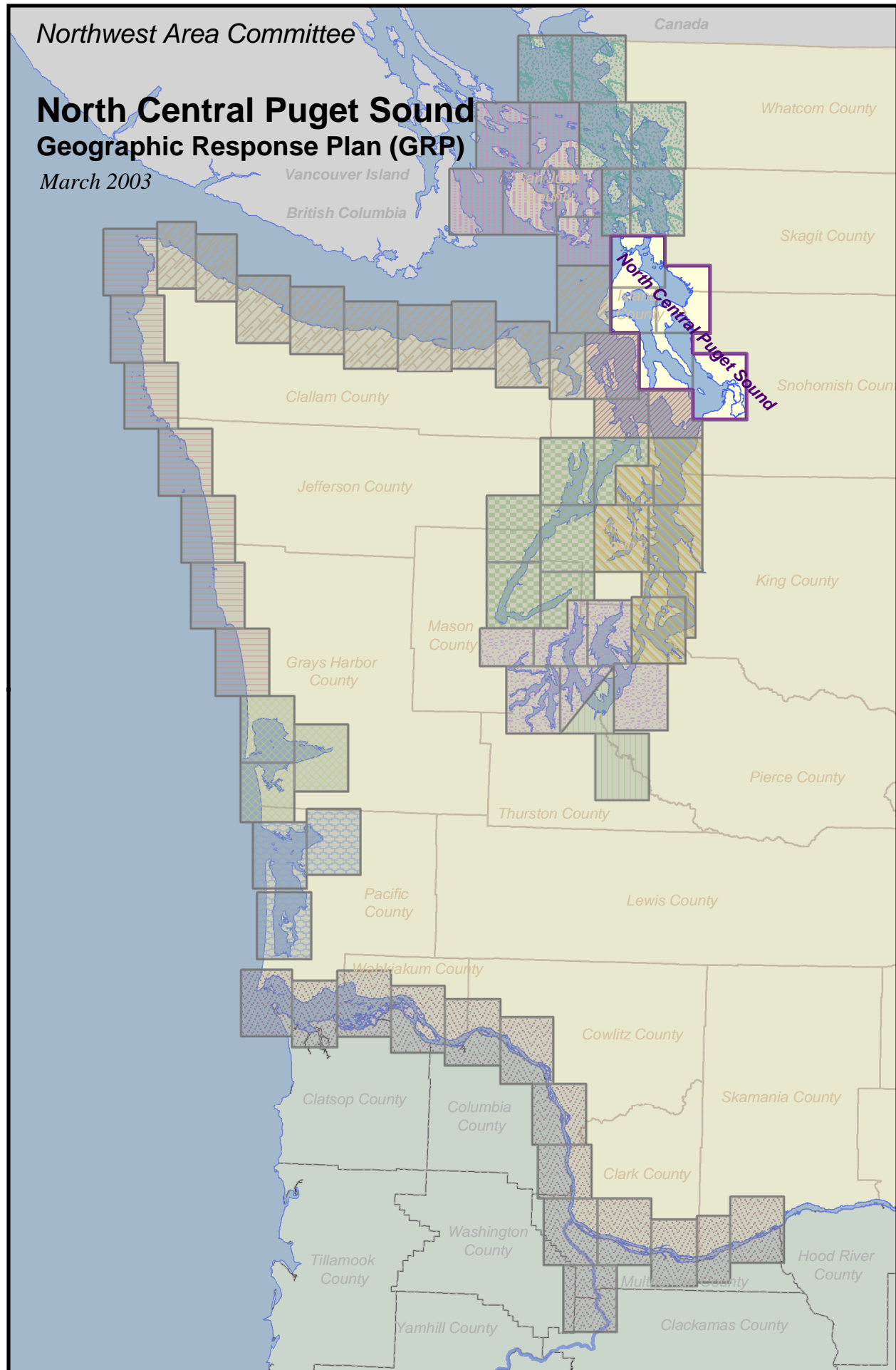


Northwest Area Committee

North Central Puget Sound Geographic Response Plan (GRP)

March 2003



SPILL RESPONSE CONTACT SHEET

Required Notifications For Hazardous Substance or Oil Spills

USCG National Response Center.....	(800) 424-8802
In Oregon:	
Department of Emergency Management	(800) 452-0311
In Washington:	
Emergency Management Division.....	(800) 258-5990
Department of Ecology Northwest Regional Office.....	(425) 649-7000
Department of Ecology Southwest Regional Office.....	(360) 407-6300

U.S. Coast Guard

National Response Center	(800) 424-8802
Marine Safety Office Puget Sound:	
Watchstander	(206) 217-6232
Safety Office	(206) 217-6232
Marine Safety Office Portland:	
Watchstander	(503) 240-9301
Safety Office	(503) 240-9379
Pacific Strike Team	(415) 883-3311
District 13:	
MEP/drat	(206) 220-7210
Command Center	(206) 220-7001
Public Affairs	(206) 220-7237
Vessel Traffic Service (VTS)	(206) 217-6050

Environmental Protection Agency (EPA)

Region 10 Spill Response	(206) 553-1263
Washington Ops Office	(360) 753-9083
Oregon Ops Office	(503) 326-3250
Idaho Ops Office	(208) 334-1450
RCRA/ CERCLA Hotline	(800) 424-9346
Public Affairs	(206) 553-1203

National Oceanic Atmosphere Administration

Scientific Support Coordination	(206) 526-6829
Weather	(206) 526-6087

Canadian

Marine Emergency Ops/Vessel Traffic	(604) 666-6011
Environmental Protection	(604) 666-6100
B.C. Environment	(604) 356-7721

Department of Interior

Environmental Affairs	(503) 231-6157
	(503) 621-3682

U.S. Navy

Naval Shipyard	(360) 476-3466
Naval Base Seattle	(360) 315-5440
Supervisor of Salvage	(202) 695-0231

Army Corps of Engineers

Hazards to Navigation	(206) 764-3400
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Swinomish Tribe

Tribal Office	(360) 466-3163
After Hours Emergencies	(360) 293-4684

Stillaguamish Tribe

Tribal Office	(360) 652-7362
After Hours Emergencies	(425) 513-3218

The Tulalip Tribes

Tribal Office	(360) 651-4000
After Hours Emergencies	(360) 651-4608

Federal O.S.R.O./

State Approved Response Contractors

All Out Indust. & Env. Services	(360) 414-8655
Certified Cleaning Services, Inc.	(253) 536-5500
Clean Sound Cooperative, Inc.	(425) 783-0908
Cowlitz Clean Sweep, Inc.	(360) 423-6316
FOSS Environmental	(800) 337-7455
Global Diving and Salvage	(206) 623-0621
Guardian Industrial Services, Inc.	(253) 536-0455
Island Oil Spill Association	(360) 378-5322
Matrix Service, Inc.	(360) 676-4905
MSRC	(425) 252-1300
National Response Corporation	(206) 340-2772

Washington State

Department of Ecology Headquarters	(360) 407-6900
Southwest Region	(360) 407-6300
Northwest Region	(425) 649-7000
Central Region	(509) 575-2490
Eastern Region	(509) 456-2926

Department of Fish and Wildlife	(360) 534-8233
---------------------------------	-----------------------

Emergency Management Division	(360) 438-8639
	(800) 258-5990

State Patrol

Bellevue	(425) 455-7700
Tacoma	(253) 536-6210
Bremerton	(360) 478-4646

Oregon State

Department of Environmental Quality	(503) 229-5733
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Emergency Management	(503) 378-6377
	(800) 452-0311

HOW TO USE THIS GEOGRAPHIC RESPONSE PLAN

Purpose of Geographic Response Plan (GRP)

This plan prioritizes resources to be protected and allows for immediate and proper action. By using this plan, the first responders to a spill can avoid the initial confusion that generally accompanies any spill.

Geographic Response Plans are used during the emergent phase of a spill which lasts from the time a spill occurs until the Unified Command is operating and/or the spill has been contained and cleaned up. Generally this lasts no more than 24 hours. The GRPs constitute the federal on-scene coordinators' and state on-scene coordinators' (Incident Commanders) "orders" during the emergent phase of the spill. During the project phase, the GRP will continue to be used, and the planned operation for the day will be found in the Incident Action Plan's Assignment List (ICS Form 204). The Assignment List is prepared in the Planning Section with input from natural resource trustees, the Incident Objectives (ICS Form 202), Operations Planning Worksheet (ICS Form 215), and Operations Section Chief.

Strategy Selection

Chapter 4 contains complete strategy descriptions in matrix form, response priorities, and strategy maps. The strategies depicted in Chapter 4 should be implemented as soon as possible, following the priority table in Section 2 with the "Potential Spill Origin" closest to the actual spill origin. These strategy deployment priorities may be modified by the Incident Commander(s) after reviewing on scene information, including: tides, currents, weather conditions, oil type, initial trajectories, etc.

It is assumed that control and containment at the source is the number one priority of any response. If, in the responder's best judgment, this type of response is infeasible then the priorities laid out in Chapter 4, Section 2 take precedence over containment and control.

It is important to note that strategies rely on the spill trajectory. A booming strategy listed as a high priority would not necessarily be implemented if the spill trajectory and booming location did not warrant action in that area. However, the priority tables should be followed until spill trajectory information becomes available, and modifications to the priority tables must be approved by the Incident Commander(s).

The strategies discussed in this GRP have been designed for use with persistent oils and may not be suitable for other petroleum or hazardous substance products. For hazardous substance spills, refer to the Northwest Area Contingency Plan, Chapter 7000.

Standardized Response Language

In order to avoid confusion in response terminology, this GRP uses standard National Interagency Incident Management System, Incident Command System (NIIMS, ICS) terminology and strategy names, which are defined in Appendix A, Table A-1 (e.g. diversion, containment, exclusion).

Record of Changes

March 2003

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North Central Puget Sound, Washington

GEOGRAPHIC RESPONSE PLAN

1. INTRODUCTION: SCOPE OF THIS PROJECT

Geographic Response Plans are intended to help the first responders to a spill avoid the initial confusion that generally accompanies any spill. This document serves as the federal and state on-scene-coordinators “orders” during a spill in the area covered by this GRP (see Chapter 3 for area covered). As such, it has been approved by the U.S. Coast Guard Marine Safety Office and the Washington State Department of Ecology Spills Program. Changes to this document are expected as more testing is conducted through drills, site visits, and actual use in spill situations. To submit comments, corrections, or suggestions please refer to Appendix C.

GRPs have been developed for the marine and inland waters of Washington, Oregon, and Idaho. They are prepared through the efforts and cooperation of the Washington Department of Ecology, Washington Department of Fish and Wildlife, Oregon Department of Environmental Quality, Idaho State Emergency Response Commission, the U.S. Coast Guard, the Environmental Protection Agency, tribes, other state and federal agencies, response organizations, and local emergency responders.

GRPs were developed through workshops involving federal, state, and local oil spill emergency response experts, response contractors, and representatives from tribes, industry, ports, environmental organizations, and pilots. Workshop participants identified resources which require protection, developed operational strategies, and pinpointed logistical support. A similar process has been used for major updates.

Following the workshops, the data gathered was processed and reproduced in the form of maps and matrices which appear in Chapters 4 through 6. The maps in Chapters 5 and 6 were generated using Canvas. Maps for Chapter 4 were generated using ArcView GIS. The matrices were created using MS Excel, and the balance of each GRP was produced using MS Word.

The first goal of a GRP was to identify, with the assistance of the Washington State Natural Resource Damage Assessment Team, resources needing protection; response resources (boom, boat ramps, vessels, etc.) needed, site access and staging, tribal and local response community contacts, and local conditions (e.g. physical features, hydrology, currents and tides, winds and climate) that may affect response strategies. Note that GRPs only address protection of sensitive **public** resources. It is the responsibility of private resource owners and/or potentially liable parties to address protection of private resources (such as commercial marinas, private water intakes, and non-release aquaculture facilities).

Secondly, response strategies were developed based on the sensitive resources noted, hydrology, and climatic considerations. Individual response strategies identify the amount of boom necessary for implementation. The response strategies are then applied to Potential Spill Origins and trajectory modeling, and prioritized, taking into account factors such as resource sensitivity, feasibility, wind, and tidal conditions.

Draft strategy maps and matrices were sent out for review and consideration of strategy viability. Field verification was conducted for some strategies, and changes proposed by the participants were included in

a semi-final draft, which was offered for final review to all interested parties and the participants of the field verification.

Finally, the general text of the GRP was compiled along with the site description, reference maps, and logistical support.

Items included in Logistical Support:

- Location of operations center for the central response organization;
- Local equipment and trained personnel;
- Local facilities and services and appropriate contacts for each;
- Site access & contacts;
- Staging areas;
- Helicopter and air support;
- Local experts;
- Volunteer organizations;
- Potential wildlife rehabilitation centers;
- Marinas, docks, piers, and boat ramps;
- Potential interim storage locations, permitting process;
- Damaged vessel safehavens;
- Vessel repairs & cleaning;
- Response times for bringing equipment in from other areas.

2. SITE DESCRIPTION

North Central Puget Sound is divided into three areas for the geographic response plan: Skagit Bay, Saratoga Passage, and Possession Sound including Port Susan. It covers the waters east of Whidbey Island to the mainland coast of Washington State. Local economies are based primarily on natural resource use and tourism.

Refer to Chapter 6 for detailed resource information.

2.1. Physical Features

North Central Puget Sound is a diverse area that includes many types of shorelines, from large marshes on the eastern mainland side to wave cut platforms on the opposite side. Much of the land surrounding this area is rural, rural residential, and conservancy. Everett, a port heavily influenced by logging trade, is located next to an extremely sensitive marsh area that hosts abundant marine life. In addition, the Skagit River Delta, comprised of marsh and tidal flats is a biologically rich location. North Central Puget Sound includes the following shoreline habitats:¹

- Sheltered rocky flats
- Wave cut platforms
- Sand and cobble beaches
- Sand and gravel beaches
- Exposed tidal flats
- Sheltered tidal flats
- Marshes

There are several vessel traffic zones located between Whidbey Island and the mainland coast of Washington.

2.2. Hydrology

Puget Sound is an estuary with a generally two-layer flow. Surface waters, less saline due to input from freshwater sources, move seaward, while bottom waters tend to flow inland. Mixing of these two layers occurs in shallower areas such as Deception Pass.

Studies show that the surface current diverges off the Skagit River Delta, as currents north of the delta flow in a northerly direction from top to bottom, then westward through Deception Pass. The net surface current south of the delta is inland.

Bottom currents entering Puget Sound through Admiralty inlet tend to diverge at the northern end of the Central Basin. Some of the flow moves north into Possession Sound, continues to Saratoga Passage and exits through Deception Pass.

Oil from a spill near Anacortes in 1971 was later found in deep water near Kiket Island east of Deception Pass, indicating that oil was mixed downward within Deception Pass and carried inland by deep water currents.²

¹ National Oceanic and Atmospheric Administration, Environmental Sensitivity Index, Strait of Juan de Fuca & Northern Puget Sound, Central & Southern Puget Sound (Seattle: 1984).

² Evans Hamilton, Inc. and D.R. Systems, Inc., Puget Sound Environmental Atlas, vol. 1 (1987) 122-125.

2.3. Currents and Tides

The mean tidal range (MHW - MLW) for North Central Puget Sound is 6.6 to 8.0 feet. The diurnal range (MHHW - MLLW) is 10.2 to 11.6 feet.³

The currents in Skagit Bay, Saratoga Passage, Possession Sound and Port Susan are generally weak and variable. The notable exception is Deception Pass where the average flood is 5.2 knots and the average ebb is 6.6 knots.⁴

Tides and currents vary with seasonal runoff and lunar cycles in localized areas. Spill responders should consult tide and current tables for their particular location.

2.4. Winds

Because Puget Sound is bordered by mountains to the south and east, the strong Pacific Ocean westerly flow north of the Olympic Mountains is split to the north and south when it reaches the east side of the Sound. In general, during April through May, the winds split to the northwest and southwest from 10 to 20 mph near the northern end of Saratoga Passage over Whidbey Island. The trend continues for this area from June through September.

Port Susan and Possession Sound generally have northwest winds from April through September. Winds from October through March are usually southeast from 10 to 20 mph throughout the entire area from Possession Sound to Deception Pass.⁵ Local wind conditions may vary.

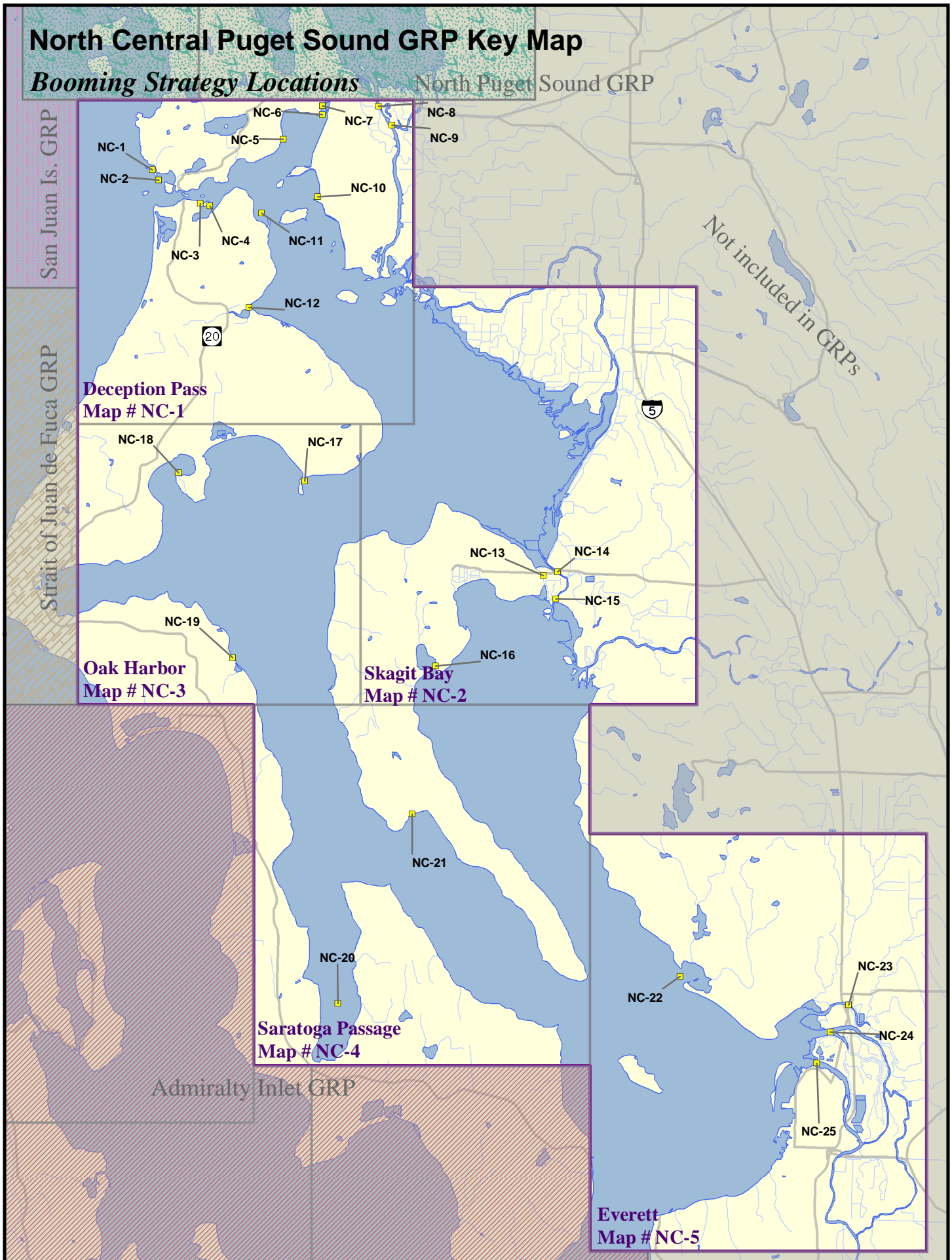
2.5. Climate

The area has a maritime climate with cool summers and mild winters. The annual precipitation is between 18 and 50 inches. Fog is common throughout the area during autumn and winter months.

³ National Oceanic and Atmospheric Administration, Tide Tables West Coast of North and South America (1994).

⁴ National Oceanic and Atmospheric Administration, Tidal Current Tables Pacific Coast of North and South America (1994).

⁵ State of Washington Department of natural Resources, Washington Marine Atlas, North Inland Waters, vol. 1 (1972).



APPENDICES

Appendix A: Summary of Protection Techniques

Protection Techniques	Description	Primary Logistical Requirements	Limitations
ONSHORE			
Beach Berms	A berm is constructed along the top of the mid-inter tidal zone from sediments excavated along the downgradient side. The berm should be covered with plastic or geo-textile sheeting to minimize wave erosion.	<ul style="list-style-type: none"> • Bulldozer/Motor grader -1 • Personnel - equipment operator & 1 worker • Misc. - plastic or geotextile sheeting 	<ul style="list-style-type: none"> • High wave energy • Large tidal range • Strong along shore currents
Geotextiles	A roll of geotextile, plastic sheeting, or other impermeable material is spread along the bottom of the supra-tidal zone & fastened to the underlying logs or stakes placed in the ground.	<ul style="list-style-type: none"> • Geotextile - 3 m wide rolls • Personnel - 5 • Misc. - stakes or tie-down cord 	<ul style="list-style-type: none"> • Low sloped shoreline • High spring tides • Large storms
Sorbent Barriers	A barrier is constructed by installing two parallel lines of stakes across a channel, fastening wire mesh to the stakes & filling the space between with loose sorbents.	Per 30 meters of barrier <ul style="list-style-type: none"> • Wire mesh - 70 m x 2 m • Stakes - 20 • Sorbents - 30 m² • Personnel - 2 • Misc. - fasteners, support lines, additional stakes, etc. 	<ul style="list-style-type: none"> • Waves > 25 cm • Currents > 0.5 m/s • Tidal range > 2 m
Inlet Dams	A dam is constructed across the channel using local soil or beach sediments to exclude oil from entering channel.	<ul style="list-style-type: none"> • Loader - 1 • Personnel - equipment operator & 1 worker or several workers w/shovels 	<ul style="list-style-type: none"> • Waves > 25 cm • Tidal range exceeding dam height • Freshwater outflow

NEARSHORE			
Containment Booming	Boom is deployed in a "U" shape in front of the oncoming slick. The ends of the booms are anchored by work boats or drogues. The oil is contained within the "U" & prevented from reaching the shore.	For 150 meters Slick: <ul style="list-style-type: none"> • Boom - 280 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, drogues, connectors, etc. 	<ul style="list-style-type: none"> • High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s
Exclusion Booming	Boom is deployed across or around sensitive areas & anchored in place. Approaching oil is deflected or contained by boom.	Per 300 meters of Boom <ul style="list-style-type: none"> • Boats - 1 • Personnel - boat crew & 3 boom tenders • Misc.- 6 anchors, anchor line, buoys, etc. 	<ul style="list-style-type: none"> • Currents > 0.5 m/s • Breaking waves > 50 cm • Water depth > 20 m
Deflection Booming	Boom is deployed from the shoreline away from the approaching slick & anchored or held in place with a work boat. Oil is deflected away from shoreline.	Single Boom, 0.75 m/s knot current <ul style="list-style-type: none"> • Boom - 60 m • Boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit 	<ul style="list-style-type: none"> • Currents > 1.0 m/s • Breaking waves > 50 cm
Diversion Booming	Boom is deployed from the shoreline at an angle towards the approaching slick & anchored or held in place with a work boat. Oil is diverted towards the shoreline for recovery.	Single Boom, 0.75 m/s knot current <ul style="list-style-type: none"> • Boom - 60 m • boats - 1 • Personnel - boat crew + 3 • Misc. - 3 anchors, line, buoys, recovery unit 	<ul style="list-style-type: none"> • Currents > 1.0 m/s • Breaking waves > 50 cm
Skimming	Self-propelled skimmers work back & forth along the leading edge of a windrow to recover the oil. Booms may be deployed from the front of a skimmer in a "V" configuration to increase sweep width. Portable skimmers are placed within containment booms in the area of heaviest oil concentration.	Self-propelled (None) Towed <ul style="list-style-type: none"> • Boom - 200 m • Boats - 2 • Personnel - boat crews & 4 boom tenders • Misc. - tow lines, bridles, connectors, etc. Portable <ul style="list-style-type: none"> • Hoses - 30 m discharge • Oil storage - 2000 liters 	<ul style="list-style-type: none"> • High winds • Swells > 2 m • Breaking waves > 50 cm • Currents > 1.0 m/s

Source is R. Miller of Clean Sound Cooperative.

Appendix B: Original Geographic Response Plan Contributors**Local Representatives****Dave Howard, Port of Edmonds*****Washington Department of Fisheries***

Thom Hooper

Brian Benson

Industry and Response Contractors

Michelle Clark, Scott Paper

Denny Quirk, Clean Sound Cooperative

John Waters, Clean Sound Cooperative

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Bill Edgar

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Jeff Bash

Paul Heimowitz

Dick Logan

Bruce Barbour

Hathor Woods

Appendix C: Geographic Response Plan Comments/Corrections/Suggestions

If you have any questions regarding this document or find any errors, please notify one of the following agencies: or use tear out sheet (page C-3)

- Washington Department of Ecology, SPPR program, Natural Resources Unit
- USCG Marine Safety Office Puget Sound, Planning Department
- USCG Marine Safety Office Portland
- Oregon Department of Environmental Quality
- Idaho Emergency Response Commission
- Environmental Protection Agency Region 10

Phone Numbers:

Washington DOE	(360) 407-6972
USCG MSO Puget Sound	(206) 217-6213
USCG MSO Portland	(503) 240-9307
Oregon DEQ	(503) 229-5774
Idaho ERC	(208) 334-3263
EPA	(206) 553-6901

Bulletin Board System (BBS):

USCG MSO Puget Sound	(206) 217-6216
USCG MSO Portland	(503) 240-9308

Internet/E-mail Address:

WADOE	dald461@ecy.wa.gov
OR DEQ	WYLIE.Jack@deq.state.or.us
USCG MSO Puget Sound	jlehto@pacnorwest.uscg.mil
USCG MSO Portland	mwilcox@pacnorwest.uscg.mil
USEPA	sheldrake.beth@epamail.epa.gov

Address:

Commanding Officer United States Coast Guard MSO Puget Sound Planning Department 1519 Alaskan Way South Seattle, WA 98134-1192	Washington Department of Ecology SPPR Program Natural Resources Unit P.O. Box 47600 Olympia, WA 98504-7600	Office of The Governor Idaho Emergency Response Commission 1109 Main Statehouse Boise, ID 83720-7000
Commanding Officer United States Coast Guard Planning Department MSO Portland 6767 North Basin Ave Portland, OR 97217-3992	Oregon Department of Environmental Quality Water Quality Division 811 SW Sixth Avenue Portland, OR 97204	Environmental Protection Agency Emergency Response Branch 1200 Sixth Avenue Seattle, WA 98101

Geographic Response Plan**Comments/Corrections/Suggestions****Directions:**

Fill in your name, address, agency, and phone number. Fill in the blanks regarding the location of information in the plan being commented on. Make comments in the space provided. Add extra sheets as necessary. Submit to: Dale Davis

Department of Ecology
Spills Program
300 Desmond Drive
P.O. Box 47600
Olympia, WA 98504-7600
dald461@ecy.wa.gov

Name: _____	Title: _____	Agency: _____
Address: _____		
City: _____	State/Province: _____	Zip/Postal Code: _____
Phone: (____) _____	E-Mail: _____	

GRP: _____	Page Number: _____
Location on page (chapter, section, paragraph) (e.g. 2.1, paragraph 3): _____	

Comments: _____

Northwest Area Committee
c/o Washington Department of Ecology
Spills Program
Natural Resources Unit - GRP Corrections
P.O. Box 47600
Olympia, WA 98504-7600